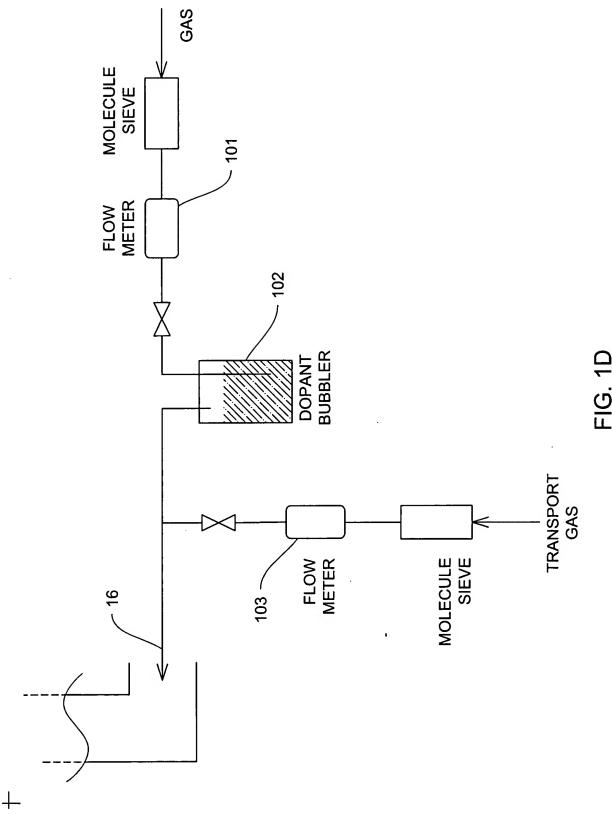


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. 26e







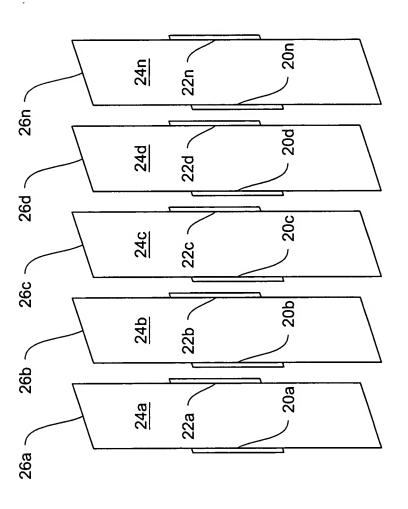


FIG. 1E



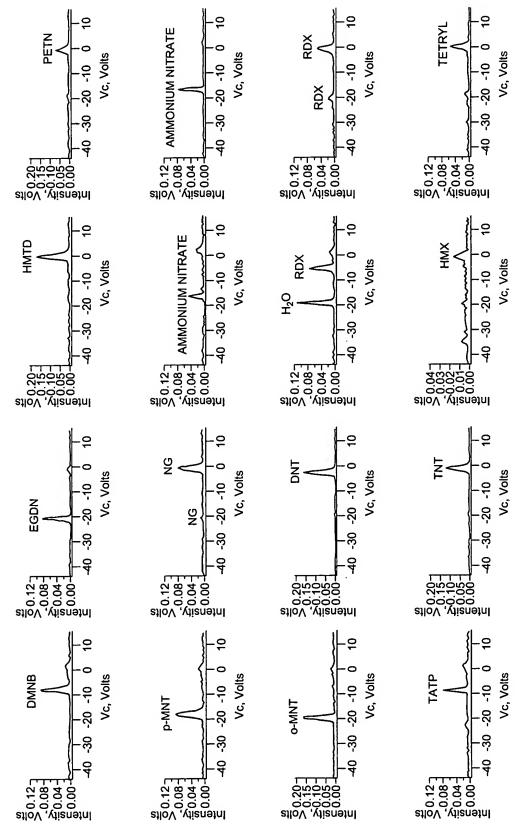


FIG. 2



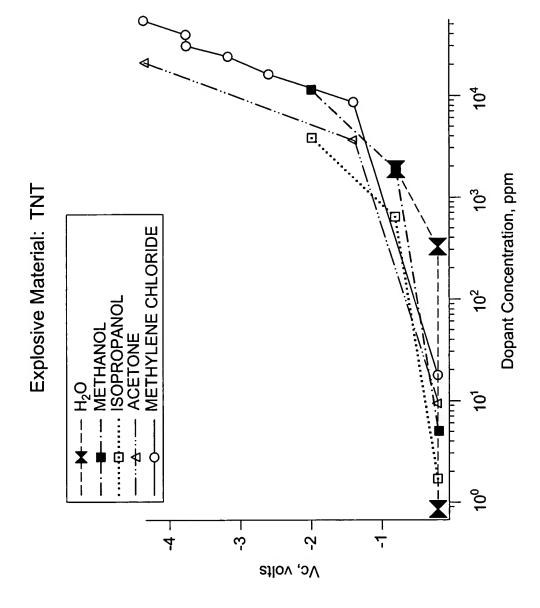


FIG. 3



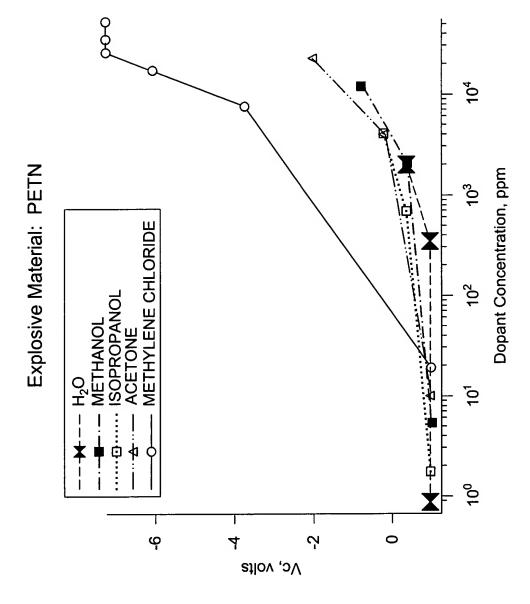


FIG. 4A

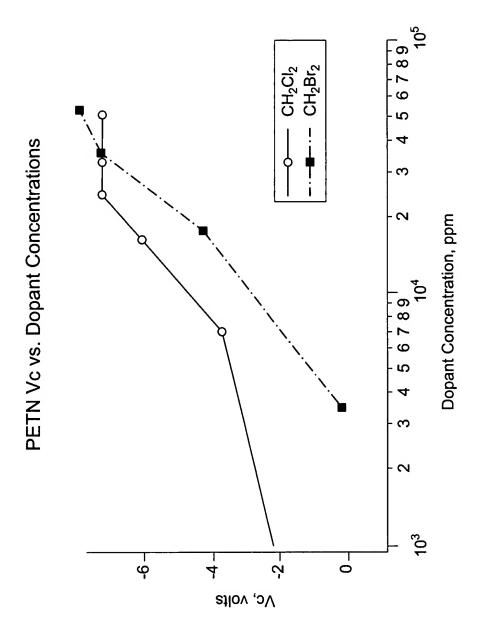
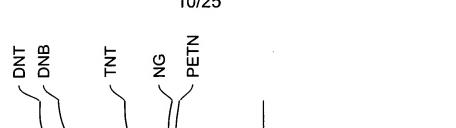


FIG. 4B





DOPANT: CH₂Cl₂

NO DOPANT

+

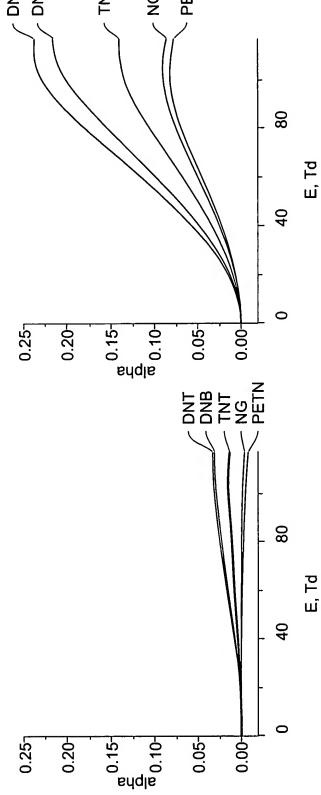
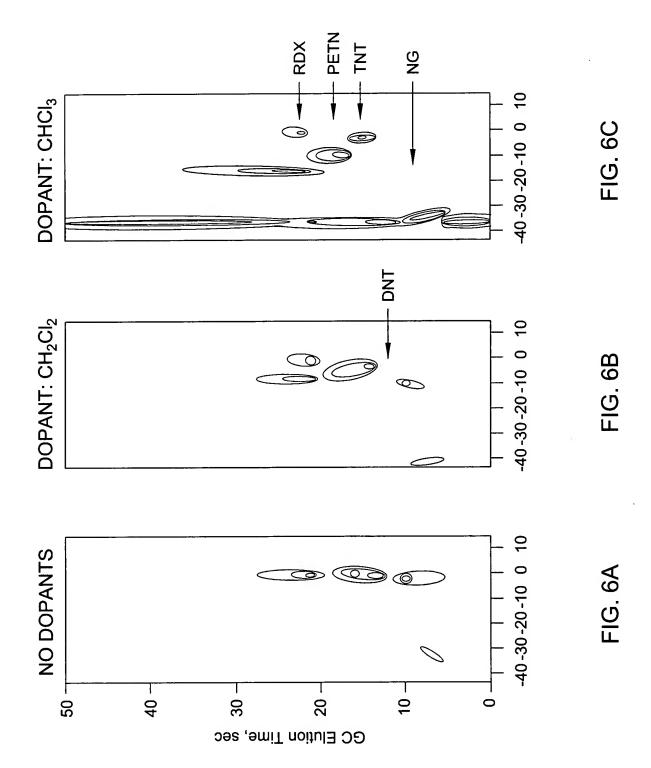


FIG. 5A

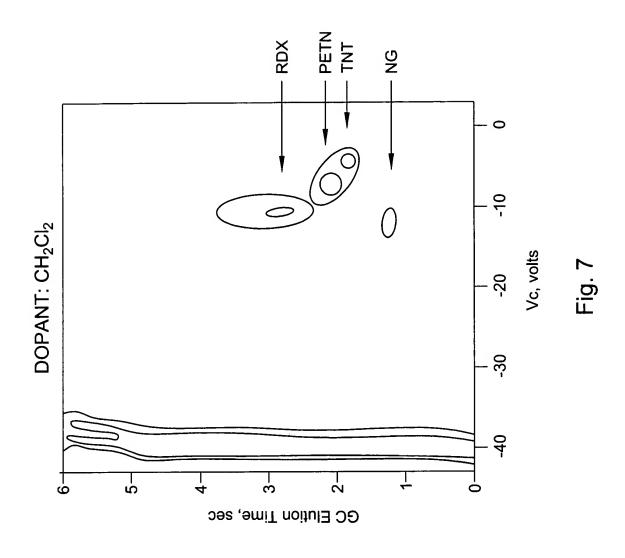
+

FIG. 5B

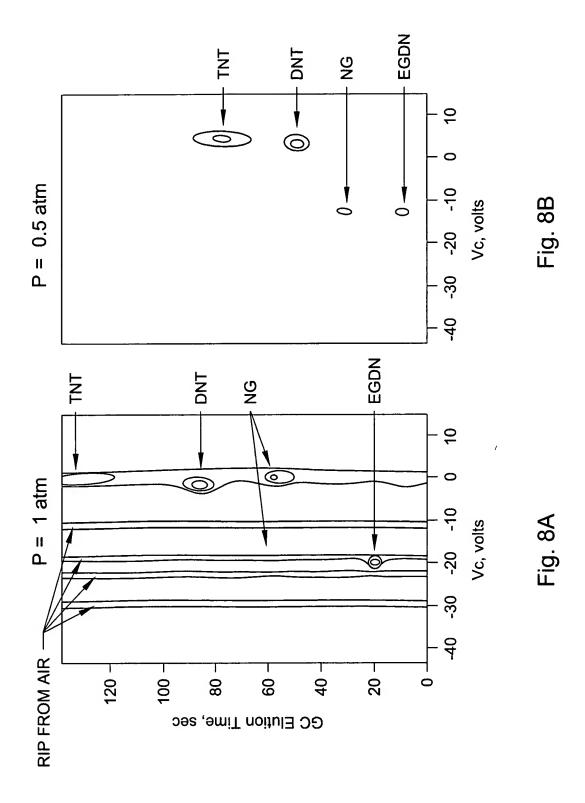












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TRADEMARK	7

Explosive/ Taggant	No Dopant	CH2Br2, 2%	CH2CI2, 2.5%	СН3ОН,1%	Isopropanol,2%
	V, Negative	V, Negative	V, Negative		Not measured
HMX t=95 sec	Vc=-0.23 Rf 950V, Air, 120 C, 1atm long drag, inlet T 150- >190C,Oven T 50->100C, 80C/m->100C/m	Vc=-4.9 Rf 950V, Air, 120 C, 1atm Rf 950V, Air, 120 C, 1atm long drag, inlet T 150->190C,Oven T 50->100C, >190C,Oven T 50->100C, 80C/m->100C/m	Vc=-4.9 Rf 950V, Air, 120 C, 1atm Rf 950V, Air, 120 C, 1atm low, HMX did not move. long drag, inlet T 150- long drag, inlet T 150- 190C, Oven T 50->100C, >190C,Oven T 50->100C, >190C,Oven T 50->100C, >100C/m->100C/m	GC temperature was low, HMX did not move.	
	V, Negative	Not measured	V, Negative	V, Negative	Not measured
Tetryl t=116 sec t=160 sec	Vc=-0.23 Rf 950V, Air, 120 C, 1atm inlet T 150, Oven T 50, 80C/min split 5:1, f=8 cc/min unless specifically noted, other molecules are under same GC conditions		Two peaks Vc=-1.99, -6.68, Rf 950V, Air, 120 C, 1atm	Vc=-0.82 Rf 950V, Air, 120 C, 1atm	
	V, Negative	V, Negative	V, Negative	V, Negative	V, Negative
PETN t=104 sec	0.23 50V, Air, 120 C, 1atm, ×10	7.9 350V, N2, 120 C, 1, 1 uL, 0.1 mg/ml drag	Vc=-5.51 Rf 950V, Air, 120 C, 1atm, mix6x10	Vc=-5.51 Vc=-1.5 Vc=-5.51 Vc=-5.51 Rf 950V, Air, 120 C, 1atm, Rf 1050V, N2, 120 C, mix6x10 Tatm, 1 uL, 0.1 mg/ml GC column flow was low	Vc=-5.51 Rf 1050V, N2, 120 C, 1atm, 1 uL, 0.1 mg/ml

Fig. 9 (part 1)

/	OIPE
	DEC 2 7 2004 8
1	TRADEMARKS

Explosive/ Taggant	No Dopant	CH2Br2, 2%	CH2CI2, 2.5%	СН3ОН,1%	Isopropanol,2%
	V, Negative	V. Negative	V, Negative	V. Negative	V. Negative
	V, Positive		V, Positive		
RDX	Vc=-0.3,negative	Vc=-9,	Vc=-8.43,negative	Vc=-2.58,	Vc=-6.68,
t=37 sec(+)	t=37 sec(+) Vc=-4.92,positive	Rf 1050V, N2, 120 C,	Vc=-6.68,positive	Rf 950V, Air, 120 C, 1atm, Rf 1050V, N2, 120 C.	Rf 1050V, N2, 120 C,
t=72 sec(-)	t=72 sec(-) Rf950V, Air, 120 C, 1atm,	1atm, 1 uL, 0.1 mg/ml	Rf 950V, Air, 120 C,	_	1atm, 1 uL, 0.1 mg/m!
	mix6x10		1atm, mix6x10	no Pos ion shown, MeOH	
	Pos and neg are at different		Pos and neg are at	depressed it.	
	retention time, break down effect		different retention time, break down effect		
	V, Negative	V, Negative	V, Negative	V, Negative	V, Negative
NG	Two Peaks	Vc=-10,	one peak	peaks	Vc=-10,
t=31 sec	Vc=-0.23, -20.7,	Rf 1050V, N2, 120 C,	Vc=-9.6,	Vc=-2.58, -33.7,	Rf 1050V, N2, 120 C,
	Rf 950V, Air, 120 C, 1atm,	1atm, 1 uL, 0.1 mg/ml	Rf 950V, Air, 120 C,	Rf 950V, Air, 120 C, 1atm, 1atm, 1 uL, 0.1 mg/m	1atm, 1 uL, 0.1 mg/ml
	mix6x10		1atm, mix6x10	mix6x10	
	V, Negative	×	V, Negative	V, Negative	V, Negative
TNT	Vc=-0.82,		Vc=-2.58,	Vc=-0.82,	Vc=-10,
t=72 sec	Rf 950V, Air, 120 C, 1atm,		Rf 950V, Air, 120 C,	Rf 950V, Air, 120 C, 1atm, Rf 1050V, N2, 120 C,	Rf 1050V, N2, 120 C,
	mix6x10		1atm, mix6x10	mix6x10	1atm, 1 uL, 0.1 mg/m
	V, Negative	×	V, Negative	V, Negative	V, Negative
EGDN	Vc=-20,		Vc=-34,	Vc=-33.7,	Vc=-30,
t=10 sec	Rf 950V, Air, 120 C, 1atm,		Rf 950V, Air, 120 C,	Rf 950V, Air, 120 C, 1atm, Rf 850V, N2, 120 C,	Rf850V, N2, 120 C,
	mix6x10		1atm, 2 uL, 0.1 mg/m1	mix6x10	1atm, 1 uL, 0.1 mg/ml
			peak too close to MeCI2 (-36 V)		peak too close to Isopropanol (-32 V)
	V, Negative	×	×	V, Negative	V, Negative
DNT	Vc=-1.7	no peaks	no peaks	Vc=-2	Vc=-16.7
t=48 sec	RESOV, Air, 120 C., 1atm.		•••	KI 950V, Alr, 120 C, 18tm, KI 950V, NZ, 120 C,	RT 950V, NZ, 120 C,
	O I XOXI III			OIXOXIU	i aun, weak signal decreased by 20 times
		-			
	••				
		~:	(C #0"/ C		

Fig. 9 (part 2)

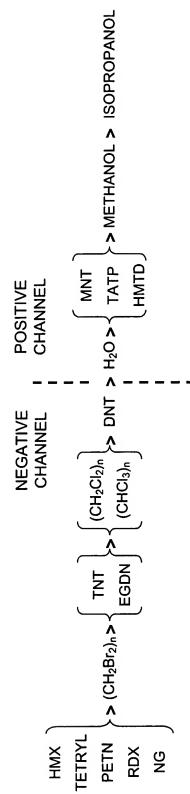
/	61
(2	DEC 2 7 2004
8	TRADENTS!

19 19 19 19 19 19 19 19	Explosive/	No Dopant	CH2Br2, 2%	CH2CI2, 2.5%	СН3ОН,1%	Isopropanol,2%
t V. Positive Not measured V. Positive X tc R1950V, Air, 120 C. 1 atm. too close to RIP X tc close to RIP X X tc V. Positive Not measured V, Positive X tc R1950V, Air, 120 C. R1950V, Air, 120 C. X cc R1950V, Air, 120 C. R1950V, Air, 120 C. X cc R1950V, Air, 120 C. R1950V, Air, 120 C. X cc R1950V, Air, 120 C. R1950V, Air, 120 C. R1950V, Air, 120 C. cc R1950V, Air, 120 C. R1950V, Air, 120 C. R1950V, Air, 120 C. cc R1950V, Air, 120 C. R1950V, Air, 120 C. R1950V, Air, 120 C. cc R1950V, Air, 120 C. R1950V, Air, 120 C. R1950V, Air, 120 C. cc R1950V, Air, 120 C. R1950V, Air, 120 C. R1950V, Air, 120 C. cc R1950V, Air, 120 C. R1950V, Air, 120 C. R1950V, Air, 120 C. cc R1950V, Air, 120 C. R1950V, Air, 120 C. R1950V, Air, 120 C. cc R1950V, Air, 120 C. <td>0000</td> <td></td> <td></td> <td></td> <td></td> <td></td>	0000					
We=17.8, We=17.8, R1950V. Air, 120 C. R1950V. Air, 120 C.			Not measured	1	×	Not measured
R1950V, Air, 120 C, 1atm, too Iam, too close to RIP V, Positive V, Positive Not measured V, Positive V Positive Not measured V, Positive V Positive V Positive V Positive Not measured V, Positive V	o-MNT	1-		1		
V	Taggant	Rf 950V, Air, 120 C, 1atm, too		Rf 950V, Air, 120 C,		
V, Positive Not measured V, Positive X t R1950V, Air, 120 C, 1atm, too Not measured V, Positive X v, Positive Not measured V, Positive X v, Positive Not measured V, Positive V, Positive v, Positive Not measured V, Positive Not measured v, Positive V, Positive V, Positive v, Positive V, Posi	t=16 sec	close to RIP		1atm, too close to RIP		
VC=-16.7, R1950V, Air, 120 C, 1atm, too R1950V, Air, 120 C, 1atm, too R1950V, Air, 120 C, 1atm VC=-7.9, R1950V, Air, 120 C, 1atm V, Positive			Not measured		×	Not measured
R1950V, Air, 120 C, 1atm, too R1950V, Air, 120 C, 1atm, too close to RIP 1atm, too close to RIP 1atm, too close to RIP X	p-MNT	Vc=-16.7,		Vc=-14.9,		
1	Taggant	Rf 950V, Air, 120 C, 1atm, too		Rf 950V, Air, 120 C,		
v, Positive Not measured v, Positive V, Positive X vc=-7.9, rec Rf950V, Air, 120 C, 1atm Rf950V, Air, 120 C, 1atm Vc=-9, Rf950V, Air, 120 C, 1atm vc=-843, rec Rf950V, Air, 120 C, 1atm Not measured v, Positive V, Positive vc=-15, rec Rf950V, Air, 120 C, 0.6atm Not measured v, Positive V, Positive vc=-15, rec Rf950V, Air, 120 C, 0.6atm Not measured v, Positive V, Positive vc=-15, rec Rf950V, Air, 120 C, 0.6atm Not measured vc=-14, rec=-0.82, rec=-0.82, rec=-0.82, rec vc=-15, rec Rf950V, Air, 120 C, 0.6atm Not measured vc=-14, rec=-0.82, rec vc=-16, regative V, Negative Not measured vc=-24.3, repositive vc=-19.6, regative V, Positive Vr=-24.3, repositive vc=-19.6, regative Vr=-24.3, repositive Vr=-24.3, repositive retertion time, break down to Vr=-24.3, repositive Vr=-24.3, repositive Pos and neg are at different retention time, break down to NH3 (+) and HNO3(-) Pread down to NH3 (+) and HNO3(-)	19 sec	close to RIP		1atm, too close to RIP		
Vo			Not measured		×	Not measured
Not measured V, Positive Not measured V, Positive V, Positive	DMNB	Vc=-7.9,		Vc=-9,		
v. Positive Not measured V, Positive V, Positive vc=-8.43, vc=-8.43, vc=-8.43, vc=-8.43, vc=-8.43, vc=-10.8, vc=-10.	t=17 sec	Rf 950V, Air, 120 C, 1atm		Rf 950V, Air, 120 C,		
sec V, Positive Not measured vention in measured V, Positive V, Positive V, Positive Vo =-5. vc=-8.43, sec Rf 950 V, Air, 120 C, 1atm Vc=-10.8, Rf 950 V, Air, 120 C, 1atm Vc=-14. Rf 950 V, Air, 120 C, 1atm vc=-15, sec Rf 950 V, Air, 120 C, 0.6atm Not measured vention ime, break down to latement on time, break down to latement on latement on time, break down to latement on late				1 atm		
vc=-843, Vc=-10.8, Vc=-5, vc=-843, Rf950V, Air, 120 C, 1atm Rf950V, Air, 120 C, 1atm v bositive Not measured V, Positive V, Positive v bositive Not measured V, Negative Not measured v, Positive Not measured V, Positive Not measured v, Positive Vc=-136,-negative Not measured V, Positive v c=-196,-negative Not measured V, Positive Nc=-4.83,-positive v c=-196,-negative Vc=-136,-negative Vc=-4.83,-positive Nc=-4.33,-positive sec Rf950V, air, 120 C, 1atm Pos and neg are at different Pos and neg are at different retention time, break down to Pos and neg are at different Pos and neg are at different nH3 (+) and HNO3(-) Preak down to NH3 (+) Pos and neg are at different			Not measured	V, Positive		×
Rf 950V, Air, 120 C, 1atm Rf 950V, Air, 120 C, 1atm V, Positive Not measured latm V, Positive V, Positive V, Negative Not measured latm V, Negative Not measured latm V, Negative V, Positive V, Positive V, Positive Not measured latm V, Positive Ve=-19.6,negative letention time, break down to letention time, letention time, break down to letention time, leten	TATP	Vc=-8.43,		Vc=-10.8,	Vc=-5,	
V, Positive Not measured V, Positive V, Positive Vc=1.5, Nc=1.4, Vc=-0.82, Rf950V, Air, 120 C, 0.6 atm Vc=-0.82, Rf 950V, Air, 120 C, 1 atm old sample new sample Rf 950V, Air, 120 C, 1 atm V, Negative V, Negative Not measured V, Negative Vc=-19.6, -negative V, Positive Not measured V, Positive Vc=-19.6, -negative Vc=-41.83, -negative Not measured Vc=-19.6, -negative Vc=-41.83, -negative Not measured Vc=-19.6, -negative Vc=-24.3,negative Not measured Nc=-19.6, -negative Vc=-41.83, -negative Not measured Nc=-19.6, -negati	t=13 sec	Rf 950V, Air, 120 C, 1atm		Rf 950V, Air, 120 C,	Rf 950V, Air, 120 C, 1atm	
V, Positive Not measured V, Positive V, Positive Vc=1.5, Rf 950V, Air, 120 C, 0.6 atm old sample Vc=-1.4, Rf 950V, Air, 120 C, 1atm old sample Rf 950V, Air, 120 C, 1atm old sample V, Negative Not measured V, Negative Not measured V, Positive V, Positive V, Positive Vc=-19.6,-negative Vc=-41.83, -negative Not measured Vc=-19.6,-negative Vc=-24.3, -negative Nc=-24.3, -negative Nc=-19.6,-negative Vc=-24.3, -negative Positive Rf 950V, air, 120 C, 1atm Rf 950V, air, 120 C, 1atm Pos and neg are at different retention time, break down to the break down to tetention time, break down to the hold (fifterent retention time, break down to hold (fifterent retention time, break down to NH3 (+) and HNO3(-) break down to NH3 (+) and HNO3(-)				1atm		
Vc=1.5, Vc=1.4, Vc=-0.82, Rf 950V, Air, 120 C, 0.6atm Rf 950V, Air, 120 C, 1atm old sample 1atm old sample V, Negative V, Negative Not measured V, Negative V, Positive V, Positive Not measured V, Positive Vc=-19.6,-negative Vc=-41.83,-negative Not measured Vc=-19.6,-negative Vc=-41.83,-negative Nc=-24.3,-positive Nc=-19.6, air, 120 C, 1atm Rf 950V, air, 120 C, 1atm Rf 950V, air, 120 C, 1atm Pos and neg are at different Pos and neg are at different Pos and neg are at different Rf 950V, air, 120 C, 1atm Pos and neg are at different Pos and neg are at different Rf 950V, air, 120 C, 1atm Pos and neg are at different Air Albance Rf 950V, air, 120 C, 1atm Pos and neg are at different Air Albance Rf 950V, air, 120 C, 1atm Pos and neg are at different Air Albance Rf 950V, air, 120 C, 1atm Pos and neg are at different Air Albance Rf 950V, air, 120 C, 1atm Air Albance Air Albance Rf 950V, air, 120 C, 1atm Air Albance A			Not measured			×
Rf 950V, Air, 120 C, 0.6atm old sample old sample V, Negative V, Positive VC=-19.6,negative VC=-19.6,negative VC=-19.6,negative Rf 950V, Air, 120 C, 1atm V Positive VC=-19.6,negative	HMTD	Vc=1.5,		Vc=-1.4,	Vc=-0.82,	
V, NegativeNot measured V. PositiveV, NegativeNot measured V, PositiveV, PositiveVC=-19.6,negative VC=-19.6,positive Rf 950V, air, 120 C, 1atm Pos and neg are at different retention time, break down to NH3 (+) and HNO3(-)V, Not measured V, Positive NC=-41.83,negative NC=-24.3,positive Rf 950V, air, 120 C, 1atm Pos and neg are at different retention time, break down to NH3 (+)	t=49 sec	Rf 950V, Air, 120 C, 0.6atm		Rf 950V, Air, 120 C,	Rf 950V, Air, 120 C, 1atm	
V, NegativeNot measuredV, NegativeV, PositiveV, PositiveVC=-19.6,negativeVC=-41.83,negativeVC=-19.6,positiveVC=-24.3,positiveRf 950V, air, 120 C, 1atmRf 950V, air, 120 C, 1atmPos and neg are at different retention time, break down to hH3 (+) and HNO3(-)Pos and neg are at different retention time, break down to NH3 (+) and HNO3(-)		old sample		1atm	old sample	
V, NegativeNot measuredV, NegativeNot measuredV, PositiveV, PositiveNo=-41.83,negativeVC=-19.6,negativeVC=-24.3,negativeVC=-19.6,positiveVC=-24.3,negativeRf 950V, air, 120 C, 1atmRf 950V, air, 120 C, 1atmPos and neg are at different retention time, break down to heart different retention time, break down to heart different retention time, break down to NH3 (+) and HNO3(-)				new sample		
V, PositiveV, PositiveVc=-19.6,negativeVc=-41.83,negativeVc=-19.6,negativeVc=-24.3,positiveVc=-19.6,positiveRf 950V, air, 120 C,Rf 950V, air, 120 C, 1atmRf 950V, air, 120 C,Pos and neg are at different1atmretention time, break down toPos and neg are at different tetention time,NH3 (+) and HNO3(-)break down to NH3 (+)and HNO3(-)and HNO3(-)			Not measured		Not measured	witer on V
Vc=-19.6,-negativeVc=-24.3, -negativeVc=-19.6,-negativeVc=-24.3, -negativeVc=-19.6,positiveVc=-24.3,positiveRf 950V, air, 120 C, 1atm1atmPos and neg are at differentPos and neg are at differentretention time, break down toPos and neg are at different retention time, break down to NH3 (+)NH3 (+) and HNO3(-)break down to NH3 (+)		V, Positive		V, Positive		
Vc=-19.6,positive Rf950V, air, 120 C, 1atm Rf950V, air, 120 C, Pos and neg are at different retention time, break down to NH3 (+) and HNO3(-) and HNO3(-) break down to NH3 (+) and HNO3(-)	NA	Vc=-19.6,negative		Vc=-41.83,negative		Vc=-3.75,
Rf 950V, air, 120 C, 1atm Pos and neg are at different retention time, break down to NH3 (+) and HNO3(-) and HNO3(-) and HNO3(-) break down to NH3 (+) and HNO3(-)	t(+)=3 sec	Vc=-19.6,positive		Vc=-24.3,positive		Rf 950V, Air, 120 C,
Pos and neg are at different retention time, break down to different retention time, NH3 (+) and HNO3(-) break down to NH3 (+) and HNO3(-)	t(-)=6 sec	Rf 950V, air, 120 C, 1atm		Rf 950V, air, 120 C,		1atm, mix6x10
Pos and neg are at different retention time, break down to NH3 (+) and HNO3(-)		Pos and neg are at different		1 atm		no Pos ion shown,
different retention time, break down to NH3 (+) and HNO3(-)		retention time, break down to		Pos and neg are at		Isopropanol
break down to NH3 (+) and HNO3(-)		NH3 (+) and HNO3(-)		different retention time,		depressed it.
and HNO3(-)				break down to NH3 (+)		
				and HNO3(-)		

Fig. 9 (part 3)



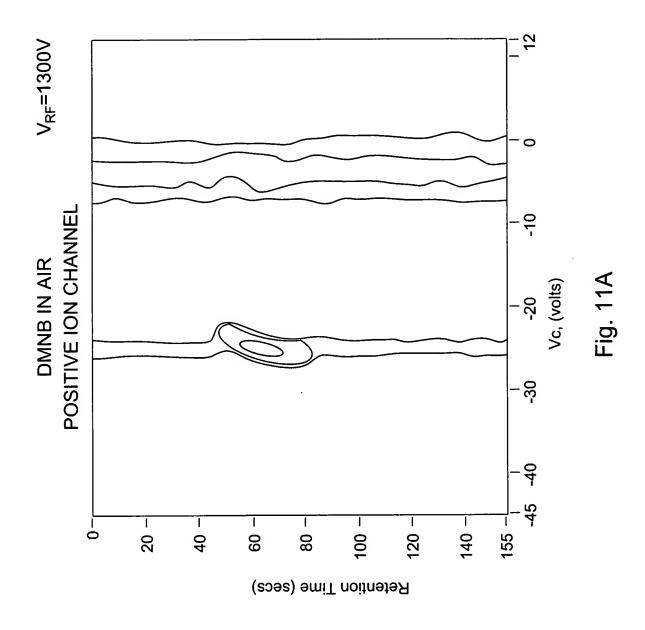
ELECTRON AFFINITY



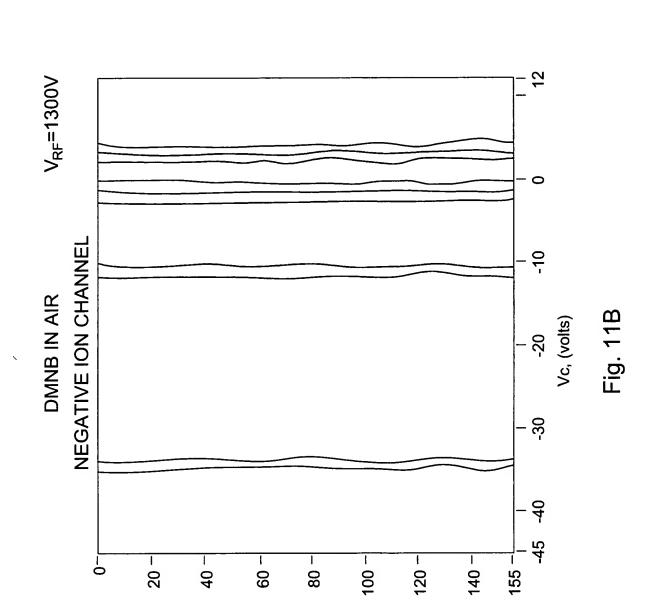
PROTON AFFINITY

Fig. 10



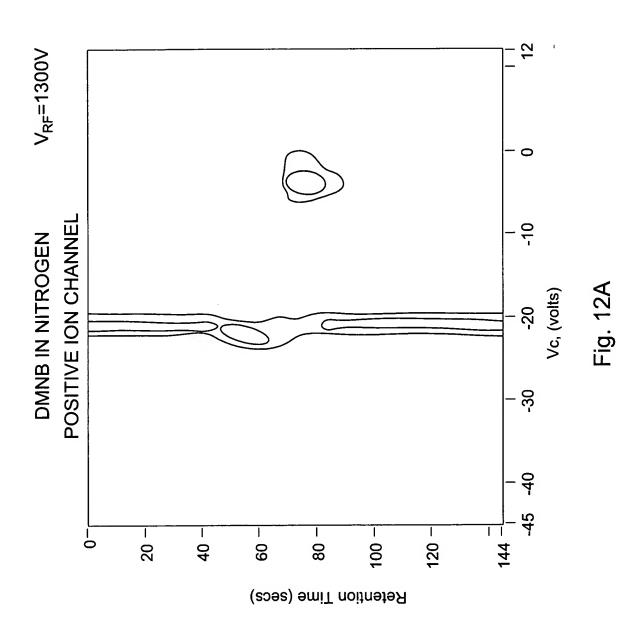




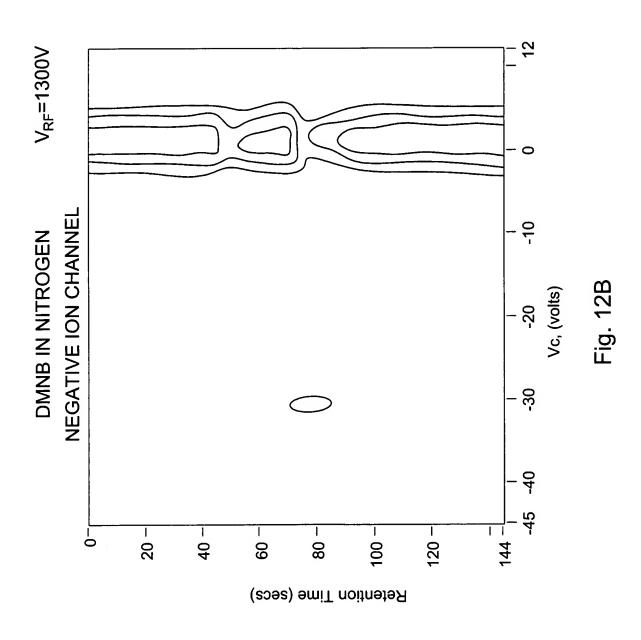


Retention Time (secs)

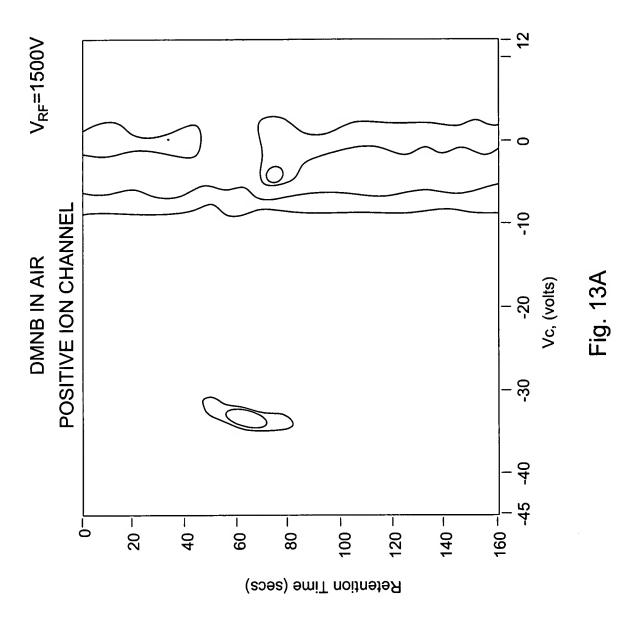




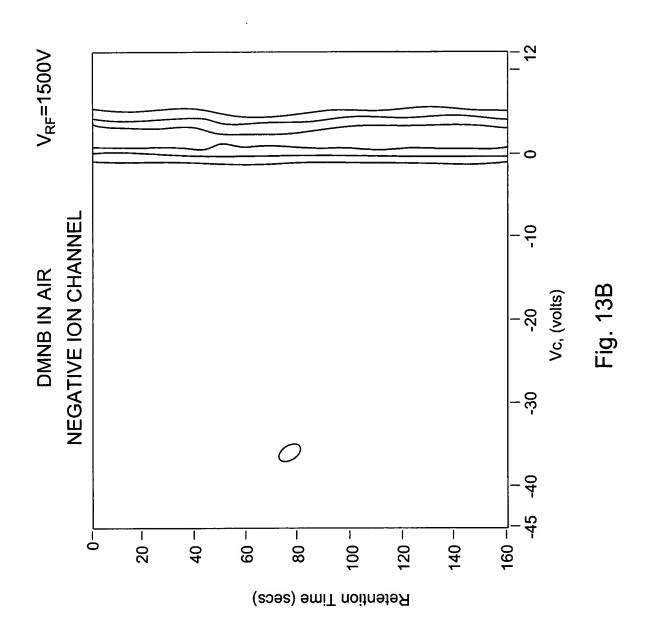




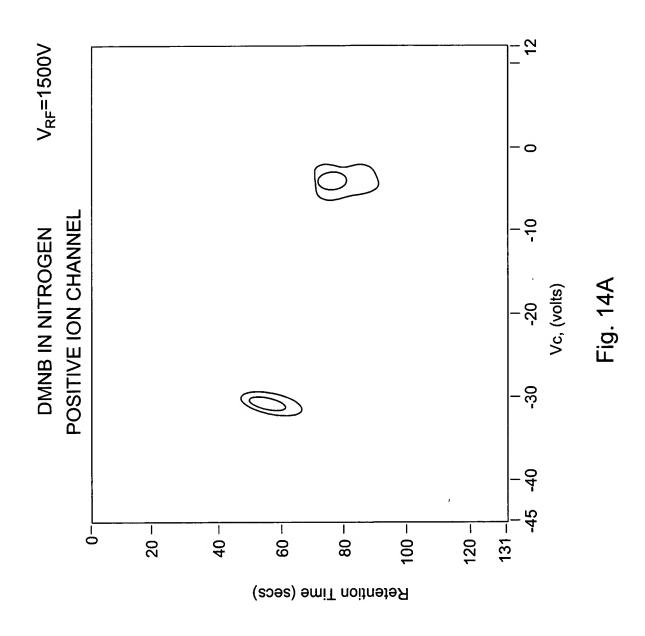












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